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(54) **UNIVERSAL ATTACHMENT DEVICE FOR SULKIES**

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B60D 1/14 (2006.01)

(52) **U.S. Cl.** **280/32.7**; 280/492; 280/494; 280/35; 180/15; 180/16

(58) **Field of Classification Search** 280/32.7, 280/494, 492, 493, 38; 180/15, 16; 58/14.7
See application file for complete search history.

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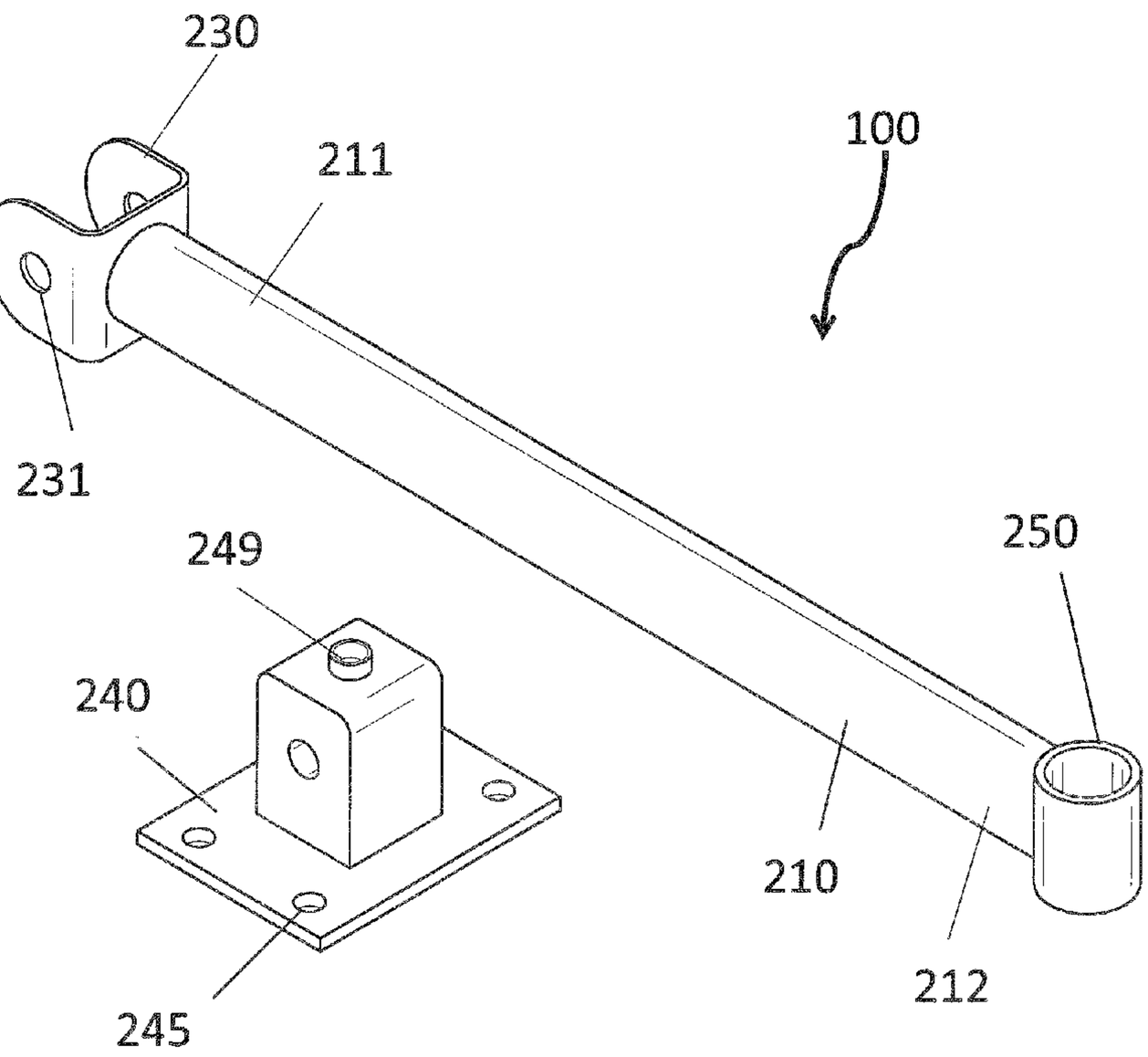
(57) **ABSTRACT**

A universal attachment device for attaching lawn care equipment including but not limited to leaf catchers, plug-core aerators, utility carts, and fertilizer spreaders to the sulky of a commercial walk-behind mower, the attachment device features a mounting shaft; a vertical pivot mount disposed on the first end of the mounting shaft for engaging a mounting plate disposed on the sulky; and a vertically oriented mounting channel disposed on the second end of the mounting shaft, the mounting channel functions to a base attachment shaft disposed on the piece of lawn care equipment or the lawn care equipment directly.

6 Claims, 4 Drawing Sheets



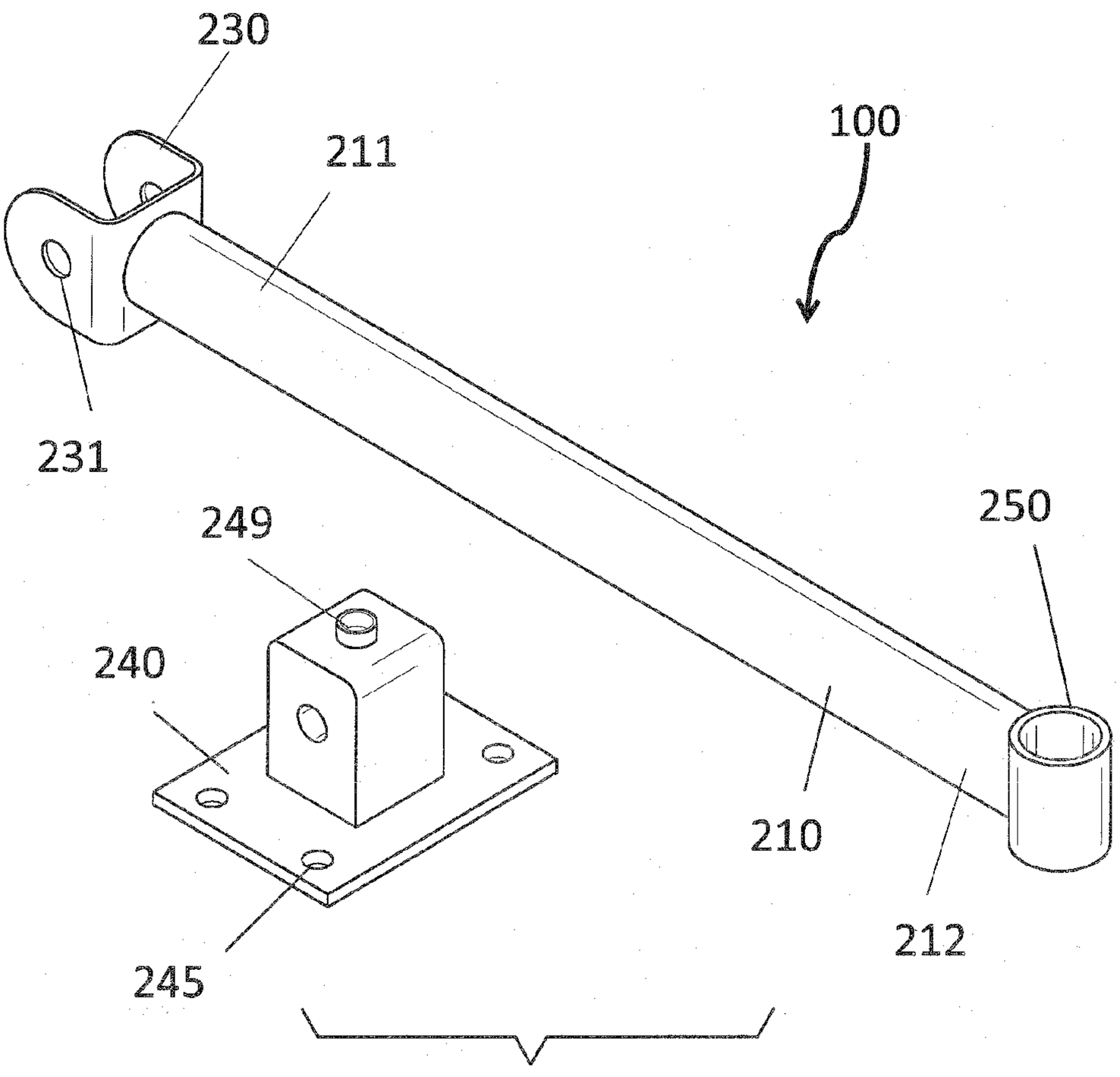

230
211
100
231
249
250
240
210
212
245

FIG. 1

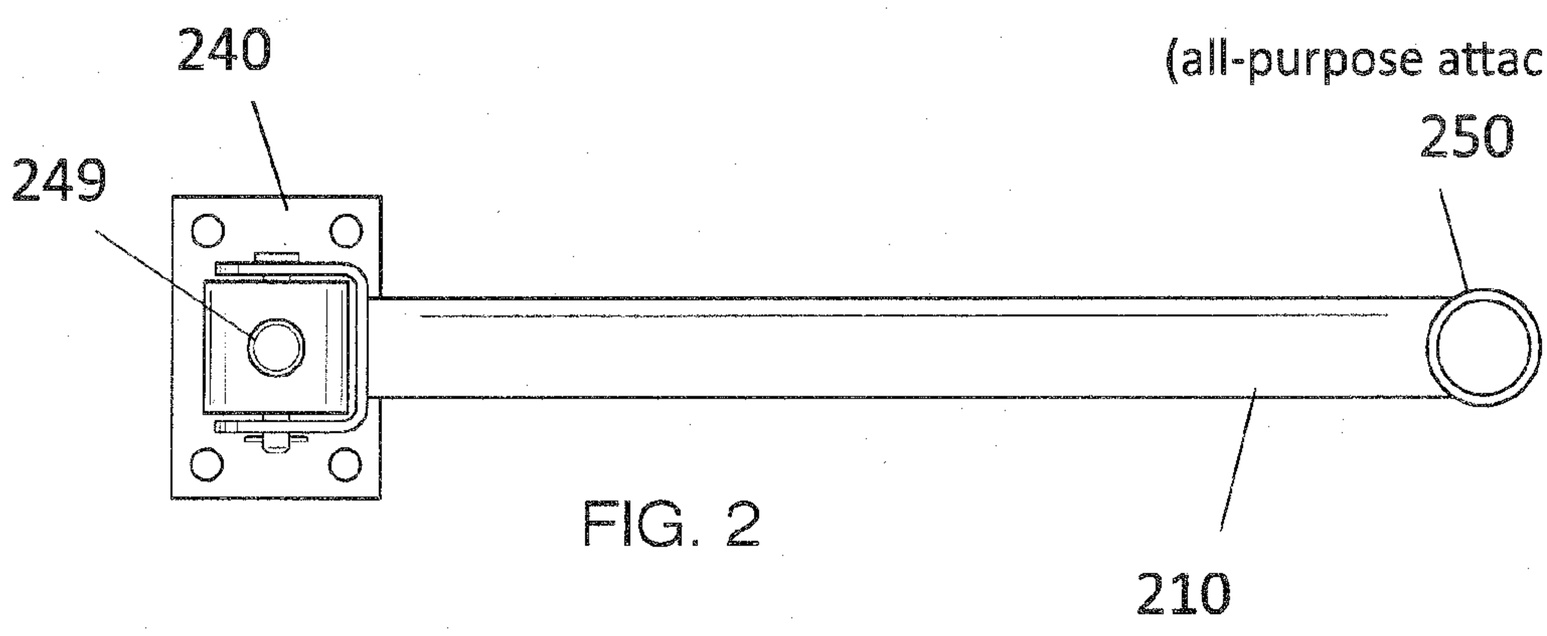

240
(all-purpose attachment)
249
250
210

FIG. 2

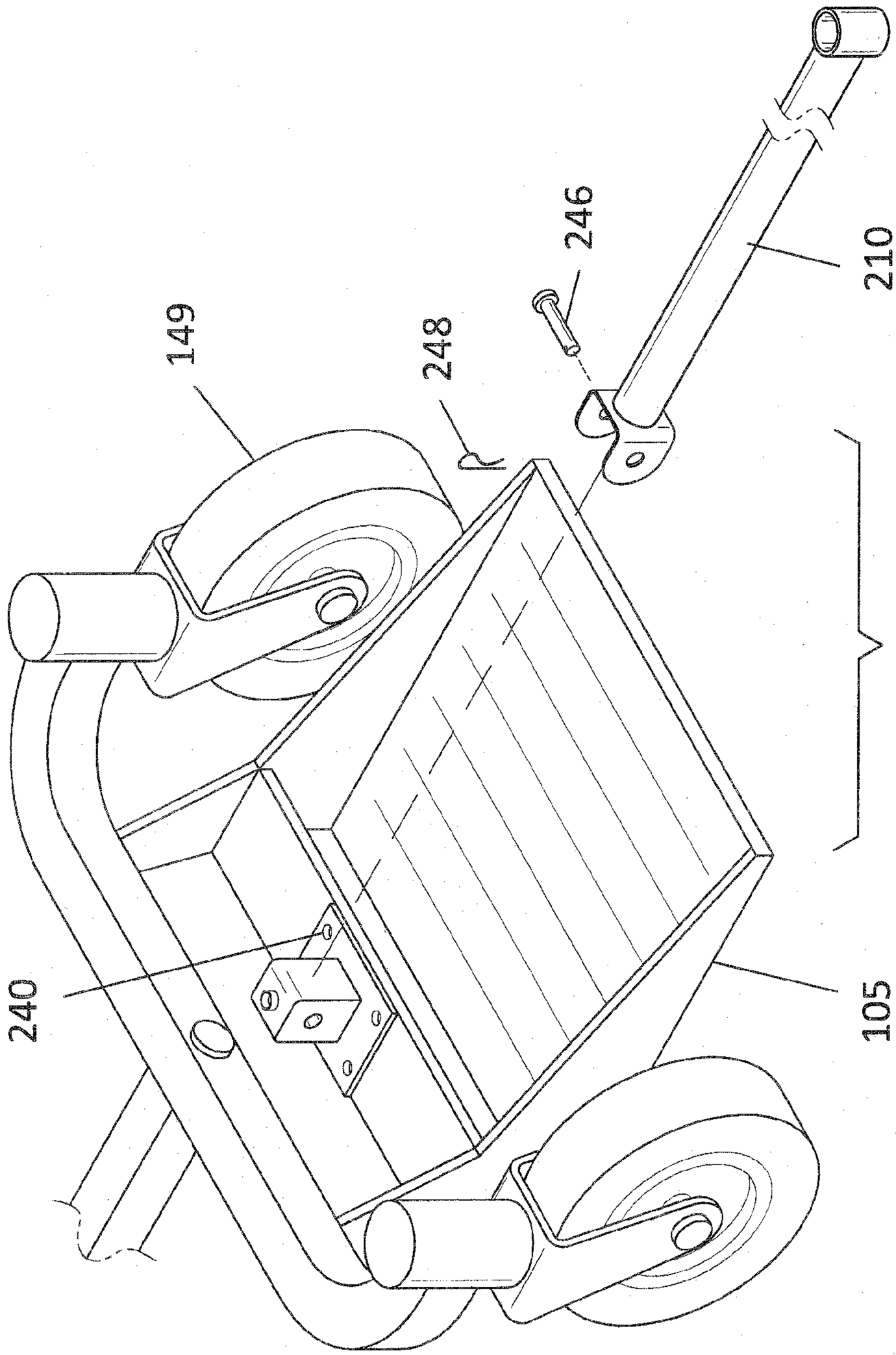


FIG. 3

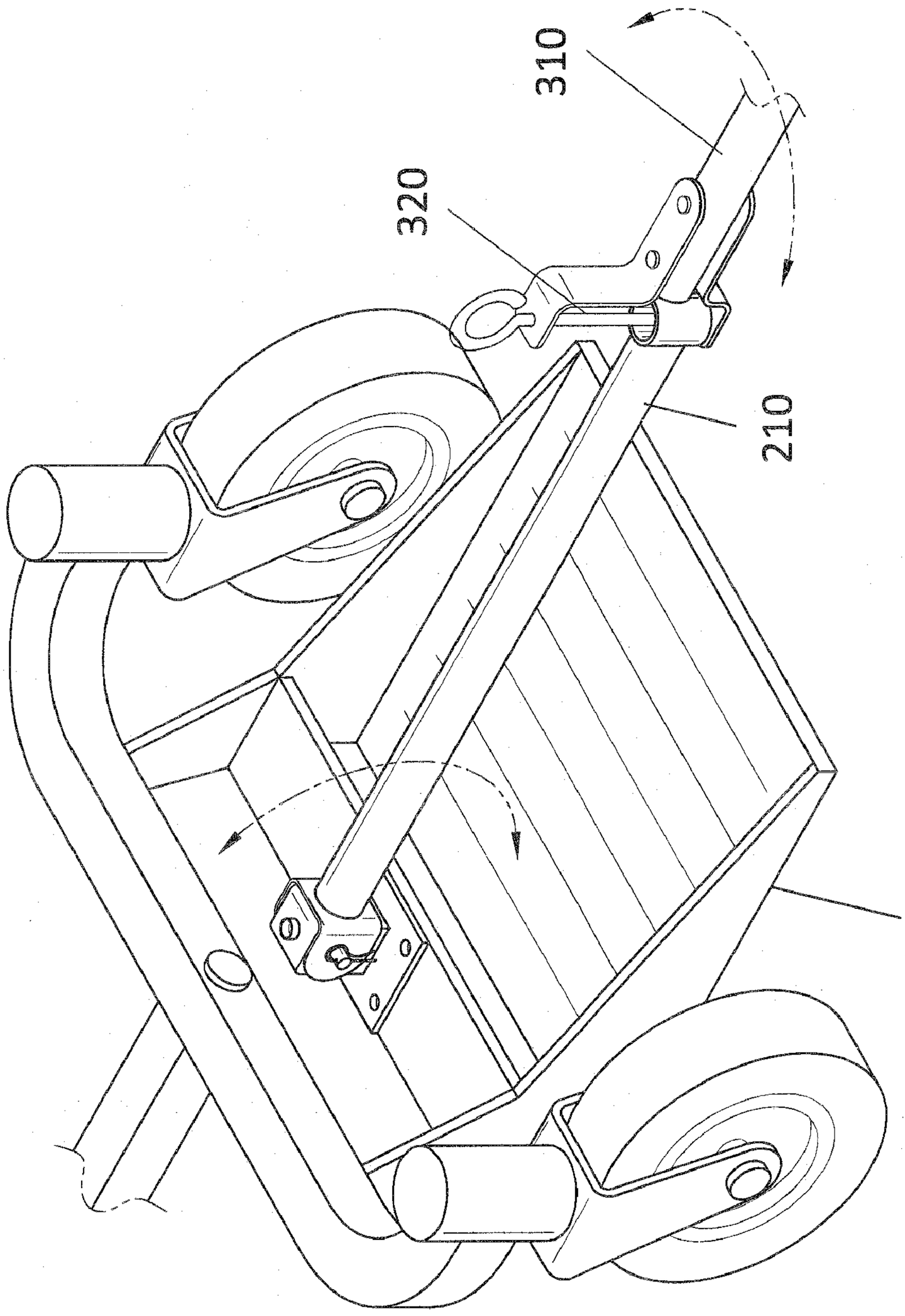


FIG. 4

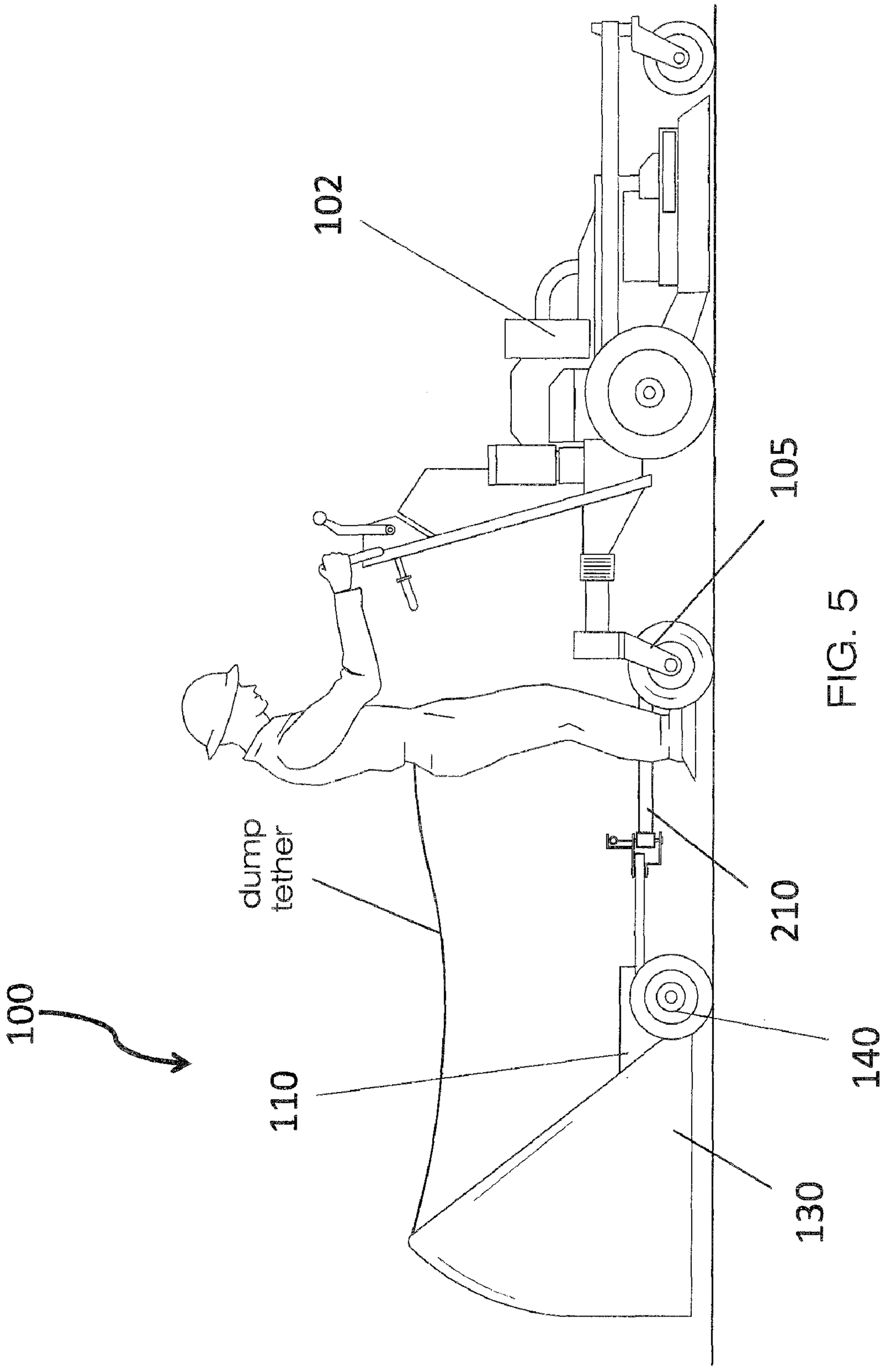


FIG. 5

UNIVERSAL ATTACHMENT DEVICE FOR SULKIES

FIELD OF THE INVENTION

The present invention is directed to a device for attaching multiple yard-care and related equipment such as a leaf catcher, fertilizer spreader, utility cart and plug-core aerator to a commercial, walk-behind mower outfitted with a one- or two-wheeled sulky.

BACKGROUND OF THE INVENTION

Lawn care customers can and do expect a wide range of services from lawn care providers in addition to lawn mowing. Such services can include but are not limited to fertilizer application, plug-core aeration, leaf and grass clipping removal, and general clean up and removal of twigs, branches, and assorted items at the beginning of each lawn care season. The present invention features a universal attachment device which can allow a single operator with a single mower to utilize a wide variety of tools attached to a standard sulky in order to complete tasks (such as the aforementioned tasks) without the need to purchase specialized equipment for each job.

Any feature or combination of features described herein are included within the scope of the present invention provided that the features included in any such combination are not mutually inconsistent as will be apparent from the context, this specification, and the knowledge of one of ordinary skill in the art. Additional advantages and aspects of the present invention are apparent in the following detailed description and claims.

SUMMARY

The present invention features a universal attachment device for attaching a piece of lawn care equipment to a sulky of a commercial, walk-behind mower. The universal attachment device comprises a mounting shaft having a first end and a second end; a vertical pivot mount disposed on the first end of the mounting shaft for engaging a mounting plate disposed on the sulky, wherein the vertical pivot mount allows pivotal movement of the mounting shaft upwardly and downwardly while restricting lateral movement of the mounting shaft; and a mounting channel disposed on the second end of the mounting shaft, the mounting channel is oriented vertically, the mounting channel functions to engage either (i) a component of the piece of lawn care equipment or (ii) a first end of a base attachment shaft, the base attachment shaft being disposed on the piece of lawn care equipment, wherein the mounting channel allows lateral movement of the piece of lawn care equipment or base attachment shaft while restricting up and down movement of the piece of lawn care equipment or base attachment shaft.

In some embodiments, the piece of lawn care equipment is a leaf catching device, a plug-core aerator, a 2-wheel utility cart, a 4-wheel utility cart, or a fertilizer spreader. In some embodiments, the mounting plate is attached to the sulky via bolts or screws driven through mounting holes disposed in the mounting plate. In some embodiments, the mounting plate is attached near a front end of the sulky. In some embodiments, a grease zerk is disposed on the mounting plate.

In some embodiments, the attachment device further comprises a pivot pin for inserting though apertures in the vertical pivot mount and through apertures in the mounting plate, the pivot pin functioning to secure the vertical pivot mount onto the mounting plate. In some embodiments, the attachment device further comprises a cotter pin for securing the pivot pin in place in the vertical pivot mount and in the mounting plate. In some embodiments, the mounting channel engages a locking shaft disposed on the first end of the base attachment shaft.

The present invention also features a kit comprising a mounting plate for attaching to a sulky; a base attachment shaft having a first end and a second end, the first end of the base attachment shaft is for attaching to a piece of lawn care equipment; and an attachment device for connecting the mounting plate to the base attachment shaft. The attachment device comprises a mounting shaft having a first end and a second end; a vertical pivot mount disposed on the first end of the mounting shaft for engaging the mounting plate disposed on the sulky, wherein the vertical pivot mount allows pivotal movement of the mounting shaft upwardly and downwardly while restricting lateral movement of the mounting shaft; and a mounting channel disposed on the second end of the mounting shaft, the mounting channel is oriented vertically, the mounting channel functions to engage the first end of a base attachment shaft, wherein the mounting channel allows lateral movement of the base attachment shaft while restricting up and down movement of the base attachment shaft.

In some embodiments, the mounting plate comprises mounting holes for allowing the mounting plate to be attached to the sulky via bolts or screws. In some embodiments, the mounting plate comprises a grease zerk. In some embodiments, the kit further comprises a pivot pin for inserting though apertures in the vertical pivot mount and through apertures in the mounting plate, the pivot pin functions to secure the vertical pivot mount onto the mounting plate. In some embodiments, the kit further comprises a cotter pin for securing the pivot pin in place in the vertical pivot mount and in the mounting plate. In some embodiments, the kit further comprises a locking shaft disposed on the first end of the base attachment shaft, the locking shaft functions to engage the mounting channel.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the attachment device of the present invention.

FIG. **2** is a top view of the attachment device of FIG. **1**.

FIG. **3** is an exploded view of the attachment device of FIG. **1**, wherein the attachment device is attachable to a sulky.

FIG. **4** is a perspective view of the attachment device of FIG. **3** attached to the sulky.

FIG. **5** is an in-use view of the attachment device of the present invention, wherein the attachment device connects a leaf catching device to the sulky (and mower).

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to FIGS. **1-5**, the present invention features a universal attachment device **100** for attaching one of many yard and lawn care devices (or related equipment) including (but not limited to) a leaf catcher, a fertilizer spreader, a utility cart, and/or a plug-core aerator to a commercial, walk-behind mower **102** outfitted with a one- or two-wheeled sulky **105**. For example, in FIG. **5** the attachment device **100** of the present invention is shown attaching a leaf-catching device to the sulky **105**, which is shown attached in standard fashion to a commercial walk-behind mower **102**. The leaf catching device can help facilitate the collection of both leaves and grass clippings, and is but one of several devices that can be

attached via the attachment device in like manner. The device **100** of the present invention is not in any way limited to attaching a leaf catching device.

Leaf catching devices are well known to one of ordinary skill in the art. FIG. **5** shows a standard leaf catching device comprising a base **110** having a leaf net **130** disposed at the back end of the base **110**. The leaf catching device is attached to the sulky **105** (of a mower **102**) via the attachment device **100** of the present invention. Disposed on the base **110** of the leaf catching device are wheels **140** for allowing the base **110** to move smoothly behind the mower **102** and sulky **105**. The leaf net **130** captures the leaves as the base **110** rolls over them.

In some leaf catching devices, the wheels **140** are connected to an axle that spans the base **110**. A plurality of bristles may surround the axle. The bristles function to "sweep" leaves (or other material) that it comes in contact with into the leaf net **130** disposed on the back end of the base **110**. As the wheels **140** rotate (when being pulled by the mower **102**), the axle rotates and in turn the bristles rotate. The bristles help to lift the leaves into the leaf net **130**.

Sulkies are well known to one of ordinary skill in the art. FIG. **3** and FIG. **4** show a standard sulky **105**. For example, the sulky **105** has a platform and wheels **149**. A mounting plate **240** is disposed at the front end of the sulky **105** (e.g., in front of the foot platform of the sulky **105**, see FIG. **3**), or a mounting plate **240** can be attached to the sulky **105** if not already in place. FIG. **1** shows the mounting plate **240** of the sulky **105**. In some embodiments, the mounting plate **240** can be attached to the sulky **105** via an attachment means, for example bolts, screws, or the like driven through mounting holes **245** disposed in the mounting plate **240**. In some embodiments, a grease zerk **249** is disposed on the mounting plate **240** (see FIG. **1**, FIG. **2**). Grease zerks are well known to one of ordinary skill in the art. For example, grease zerks can be used for adding grease via a grease gun.

The leaf catching device (e.g., the base **110**) or other piece of lawn care equipment can be secured to the sulky **105** (e.g., the mounting plate **240** of the sulky **105**) via the attachment device **100** of the present invention.

As shown in FIG. **1** and FIG. **2**, the attachment device **100** of the present invention comprises a mounting shaft **210**. The mounting shaft **210** has a first end **211** and a second end **212**. The first end **211** of the mounting shaft **210** is for attaching to the mounting plate **240** of the sulky **105** and the second end **212** of the mounting shaft **210** is for attaching to the base **110** of the leaf catching device (or other piece of lawn care equipment). A vertical pivot mount **230** is disposed on the first end **211** of the mounting shaft **210**, wherein the vertical pivot mount **230** is for engaging the mounting plate **240** attached to the sulky **105**. Vertical pivot mounts are well known to one of ordinary skill in the art. For example, a first pair of apertures **231** is disposed in the vertical pivot mount **230**. The vertical pivot mount **230** can be wrapped around the mounting plate **240** such that the first pair **231** of apertures is aligned with a second pair of standard apertures disposed in the mounting plate **240**. A pivot pin **246** can be inserted though the apertures of both the vertical pivot mount **230** and the mounting plate **240** to secure the vertical pivot mount **230** onto the mounting plate **240**. In some embodiments, a cotter pin **248** may be used to help secure the pivot pin **246** in place (see FIG. **3**).

The attachment device **100** (e.g., mounting shaft **210**) can pivot upwardly and downwardly with respect to the mounting plate **240**. The vertical pivot mount **230** is designed to allow for up and down movement. The vertical pivot mount **230** does not allow for lateral (side-to-side) movement.

A mounting channel **250** is disposed on the second end **212** of the mounting shaft **210**. In some embodiments, the mounting channel **250** is oriented vertically, for example the first end of the channel **250** faces upwardly (e.g., toward the sky) and the second end of the channel **250** faces the ground surface. In some embodiments, the vertical orientation of the channel **250** can allow the lawn equipment device (e.g., leaf catching device) to move side-to-side. The mounting channel **250** is for engaging a component of the leaf catching device or other lawn care device. Or, the mounting channel **250** can engage a base attachment shaft **310** disposed on the leaf catching device (e.g., on the base **110**).

As previously stated, the attachment device **100** of the present invention is all-purpose attachment device. The present invention is not limited to attaching leaf catchers to the sulky, for example the attachment device **100** (e.g., the mounting channel **250**) can accommodate plug-core aerators, 2-wheel and 4-wheel utility carts, fertilizer spreaders, and the like.

In some embodiments a locking shaft **320** is disposed on an end (the end not attached to the lawn care equipment) of the base attachment shaft **310**. The locking shaft **320** is for engaging (e.g., inserting through) the mounting channel **250** on the second end **212** of the mounting shaft **210**. The locking shaft **320** allows the base attachment shaft **310** to move laterally (side-to-side). The locking shaft **320** does not necessarily allow the base attachment shaft **310** to move up and down.

The attachment device **100** of the present invention may be constructed from a variety of materials and in a variety of sizes. For example, in some embodiments, the attachment device **100** is constructed from a material comprising metal, plastic, wood, rubber, the like, or a combination thereof.

The following the disclosures of the following U.S. Patents are incorporated in their entirety by reference herein: U.S. Pat. No. 6,301,865; U.S. Pat. No. 4,569,187; U.S. Pat. No. 4,828,282; U.S. Pat. No. 5,413,364; U.S. Pat. No. 6,062,582.

Various modifications of the invention, in addition to those described herein, will be apparent to those skilled in the art from the foregoing description. Such modifications are also intended to fall within the scope of the appended claims. Each reference cited in the present application is incorporated herein by reference in its entirety.

Although there has been shown and described the preferred embodiment of the present invention, it will be readily apparent to those skilled in the art that modifications may be made thereto which do not exceed the scope of the appended claims. Therefore, the scope of the invention is only to be limited by the following claims.

What is claimed is:

1. A kit comprising:

(a) a sulky having a front end and a rear end;

(b) a mounting plate for attaching to the sulky;

(c) a base attachment shaft having a first end and a second end, the first end of the base attachment shaft is for attaching to a piece of lawn care equipment; and

(d) an attachment device for connecting the mounting plate to the base attachment shaft, said attachment device comprising:

(i) a mounting shaft having a first end and a second end;

(ii) a vertical pivot mount disposed on the first end of the mounting shaft for engaging the mounting plate directly connected on the front end of the sulky, wherein the vertical pivot mount allows pivotal movement of the mounting shaft upwardly and downwardly while restricting lateral movement of the mounting shaft; and

(ii) a mounting channel disposed on the second end of the mounting shaft, the mounting channel is oriented vertically, the mounting channel functions to engage the first end of the base attachment shaft, wherein the mounting channel allows lateral movement of the base attachment shaft while restricting up and down movement of the base attachment shaft.

2. The kit of claim **1**, wherein the mounting plate comprises mounting holes for allowing the mounting plate to be attached to the sulky via bolts or screws.

3. The kit of claim **1**, wherein the mounting plate comprises a grease zerk.

4. The kit of claim **1** further comprising a pivot pin for inserting though apertures in the vertical pivot mount and through apertures in the mounting plate, the pivot pin functions to secure the vertical pivot mount onto the mounting plate.

5. The kit of claim **4** further comprising a cotter pin for securing the pivot pin in place in the vertical pivot mount and in the mounting plate.

6. The kit of claim **1** further comprising a locking shaft disposed on the first end of the base attachment shaft, the locking shaft functions to engage the mounting channel.

* * * * *